

**Topic Title:** Agricultural TMDL Prioritization and BMP Implementation in the Weiser Flat

**Area:** Management and/or Water

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**Biographical Sketch:** Scott was raised in Folsom, California and attended the University of California at Berkeley where he graduated with a Bachelors Degree in Conservation and Resource Studies. He moved to Boise in 1997 and worked briefly with the Natural Resources Conservation Service in Caldwell before being accepting a position with the Idaho Association of Soil Conservation Districts. Scott's primary responsibilities with the Association include developing Agricultural TMDL Implementation Plans, and working with farmers to incorporate Best Management Practices that reduce soil erosion and improve water quality.

### **Introduction**

The Weiser Flat is a 14,400 acre area along the Snake River known primarily for onion and sugar beet production. There are four 303(d) listed streams (Hog Creek, Scott Creek, Warm Springs Creek, and Jenkins Creek) within the Flat that drain directly to the Snake River near the town of Weiser, Idaho. Each of the streams is listed for sediment, nutrients, and bacteria and a TMDL Subbasin Assessment was completed by DEQ and the local Watershed Advisory Group (WAG) in the fall of 2003.

The primary land use within the Weiser Flat is irrigated cropland. Irrigation is intensive due to the arid climate and consists primarily of surface applied water with siphon tubes into corrugated furrows. In order to maximize limited funding opportunities and focus Best Management Practice (BMP) implementation on critical acreage directly impacting water quality in each creek, the Idaho Association of Soil Conservation Districts, Natural Resources Conservation Service, Weiser River Soil Conservation District, and the WAG adopted a GIS-based tier approach that is now being used in watersheds throughout Idaho.

### **Materials and Methods**

Hard copy Farm Service Agency (FSA) aerial photography, (including tract, field, and acreage information for crop reporting) was used to digitize each individual farm field within the Weiser Flat using ArcView GIS 3.2 and X-tools Extension software. The digitized fields were subsequently grouped into tributary subwatersheds for each of the four 303(d) listed streams and three separately identified drainage areas. The digitized maps were used in the field throughout the Weiser Flat to determine the following for each individual farm field: method of irrigation, land use (cropland, pastureland, or CAFO/AFO), and proximity to 303(d) listed stream.

As a result of the common practice of irrigation water re-use within each of the tributary subwatersheds, siphon irrigated farm fields directly adjacent to impaired streams typically have the most significant influence on water quality. These fields were identified as "Tier 1: high priority for BMP implementation" and typically had a pipe discharging directly into a stream of concern. Siphon irrigated farm fields where irrigation tailwater re-use was likely to occur on at least one field before entering a stream segment of concern were identified as "Tier 2: medium priority for BMP implementation." Tailwater from Tier 3 fields was used multiple times on Tier 1 and Tier 2 fields before discharging into a stream segment of concern, and were identified as "low priority for BMP implementation."

### **Results**

Over 10,300 acres of agricultural fields were digitized, field truthed, and prioritized for BMP implementation. Of this acreage, 8900 acres within the Weiser Flat were identified as potentially contributing pollutants to the listed streams and the Snake River. This was then narrowed down to 2221 acres of Tier 1 agricultural land where funding and ongoing BMP implementation is currently focused. Water quality monitoring in the Weiser Flat will be collected during the 2004 irrigation season and all partners involved expect to see a reduction in pollutant loading as a result of the adopted tier strategy.